ENCLOSURE NOT INCLUDED

JAN 03 1986

S. Michael Tymiak, P.E.
Manager, Previously Operated Properties
Environmental Resources
Koppers Company Inc.
1940 Koppers Building
436 Seventh Avenue
Pittsburgh, PA 15219

RE: Geophysical Feasibility Study
South Cavalcade Street Site

Dear Mr. Tymiak:

Per your letter dated December 24, 1985, the EPA offers the following comments and recommendations on the Koppers' "Geophysical Feasibility Survey, Koppers South Cavalcade Site, Houston, Texas."

1. The Geophysical Feasibility Study (GFS) report lacks Goals - The specific purposes for conducting the geophysical feasibility study are not established.

2. The Introduction to the GFS report is inadequate - The Introduction should set the stage and orient the reader: three geophysical methods were evaluated to determine their possible usefulness in delineating soil and (possibly) groundwater contamination.

3. The presentation of the GFS report is very biased - All reporting is biased, but when two of the three methods dominate the report and the third method is mentioned in (literally) a few paragraphs and referenced to the rear of the report, the EPA must question the objectiveness of the reporting.

4. Information on the background of the test sites is not provided - Three test sites were chosen for the GFS testing. These areas were chosen based on results from a previous study and interpretation of historical aerial photographs; the reader is not provided any of this information. Determining the useful ness of the geophysical techniques is difficult without the results from previous investigations. One might conclude, for example, that electromagnetic profiling (EM) is a very poor survey technique because Figure 12 shows an excessive conductivity range for an area not believed to be contaminated.

5. The Test Results section of the GFS report is inadequate -

   a. The ability of each geophysical method to delineate the area(s) of known or suspected contamination is not discussed.

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b. The results from each of the three methods are not presented side by side for comparison.

c. A discussion of the weaknesses and strengths of each method is not provided.

d. A discussion of each method's strengths and weakness relative to an entire site survey is not provided. For example, a certain method that faired well in the GFS might not perform as well on the entire site.

6. The Conclusions section of the GFS report is inadequate - The Conclusions section is inadequate primarily because of previously documented problems. The EPA is also bothered because ground penetrating radar (GPR) is faulted for poor penetration depth; depth of penetration was never established as being an important criteria.

Despite the aforementioned problems, the EPA has concluded that:

1. For Test Area 1, a side by side comparison of EM (Figure 12) and ground penetrating radar (GPR) (Figure A-4) indicates that both methods are responding in a similar fashion, despite GPR's limited depth of penetration. The EM shows a large range of values and is probably responding to conditions at a greater depth than the GPR. The EM could not be used to actually define the boundaries of contamination, but would be useful in locating areas of possible concern. The GPR method is also useful in locating areas of possible concern and may delineate the actual boundaries of these areas to within one foot.

2. Relative to the entire site survey, those areas that are suspected to be the most contaminated can not, due to reinforced concrete, buildings, fences etc., be investigated by any of these methods.

The EPA requests that Koppers undertake the following actions:

1. Conduct a survey of the remainder of the site using EM. At this site, EM responds in a similar fashion as GPR but is much faster and less expensive.

2. A follow up GFS report is to be prepared:

   a. The power auger shall be used to place 10 soil borings within the GFS Test Site 1. Each of these borings is to be to a depth of at least 18 feet. A hand operated soil sampler shall be used to collect discrete soil samples every two feet to 18 feet below the surface, or the top of the flowing sand, whichever is encountered first. The exact location of these borings is specified on the enclosed map. These locations were selected to "ground truth"

the results of the EM and GPR surveys.

b. The follow up GFS report shall include the results of the 10 power auger borings and reflect EPA's six previous comments.

c. The follow up GFS report shall be completed for EPA review prior to the initiation of the full scale soil boring program.

Should you have any questions please contact me at (214) 767-9700.

Sincerely yours,

John Cochran
Regional Site Project Officer

Enclosure

cc: B. Tobin, MRA
B. Kier, COM
C. Faulds, TWC

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